

UHF amplifier modules

BGY115A; BGY115B; BGY115C/P; BGY115D

FEATURES

- 6 V nominal supply voltage
- 1.2 W output power (BGY115A, BGY115B and BGY115D)
- 1.4 W output power (BGY115C/P)
- Easy control of output power by DC voltage
- SMD outline.

APPLICATIONS

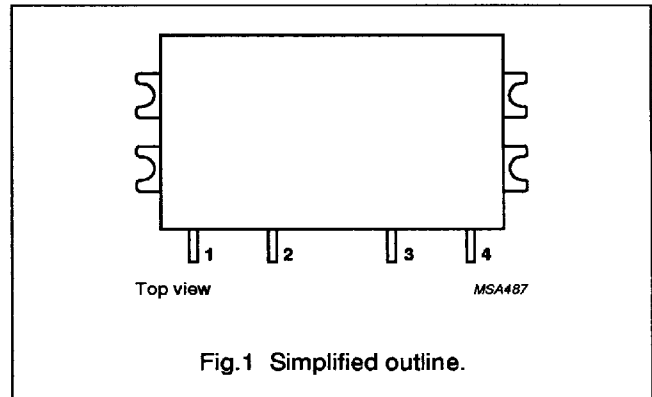
- Hand-held transmitting equipment operating in the 824 to 849 MHz, 872 to 905 MHz, 890 to 915 MHz and 902 to 928 MHz frequency ranges.

DESCRIPTION

The BGY115A, BGY115B, BGY115C/P and BGY115D are three-stage UHF amplifier modules. Each module consists of three NPN silicon planar transistor chips mounted together with matching and bias circuit components on a metallized ceramic substrate.

PINNING - SOT321A

PIN	DESCRIPTION
1	RF input
2	V _C
3	V _S
4	RF output
Flange	ground



QUICK REFERENCE DATA

RF performance at T_{mb} = 25 °C.

TYPE NUMBER	MODE OF OPERATION	f (MHz)	V _S (V)	P _L (W)	G _p (dB)	η (%)	Z _S ; Z _L (Ω)
BGY115A	CW	824 to 849	6	1.2	≥27.8	typ. 50	50
BGY115B	CW	872 to 905	6	1.2	≥27.8	typ. 50	50
BGY115C/P	CW	890 to 915	6	1.4	≥28.5	typ. 50	50
BGY115D	CW	902 to 928	6	1.2	≥27.8	typ. 50	50

LIMITING VALUES

In accordance with the Absolute Maximum Rating System (IEC 134).

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V _S	DC supply voltage BGY115A, BGY115B, BGY115D BGY115C/P	-	8.5 9	V V
V _C	DC control voltage	-	4	V
P _D	input drive power	-	5	mW
P _L	load power BGY115A, BGY115B, BGY115D BGY115C/P	-	1.6 1.8	W W
T _{stg}	storage temperature	-40	+100	°C
T _{mb}	operating mounting base temperature	-30	+100	°C

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CHARACTERISTICS

$Z_S = Z_L = 50 \Omega$; $P_D = 2 \text{ mW}$; $V_S = 6 \text{ V}$; $V_C \leq 3.5 \text{ V}$; $T_{mb} = 25 \text{ }^\circ\text{C}$; unless otherwise specified.

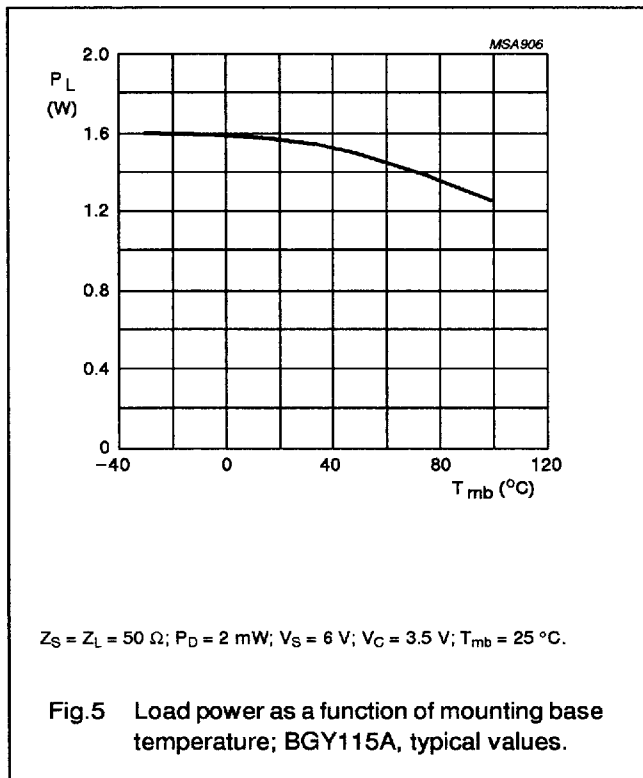
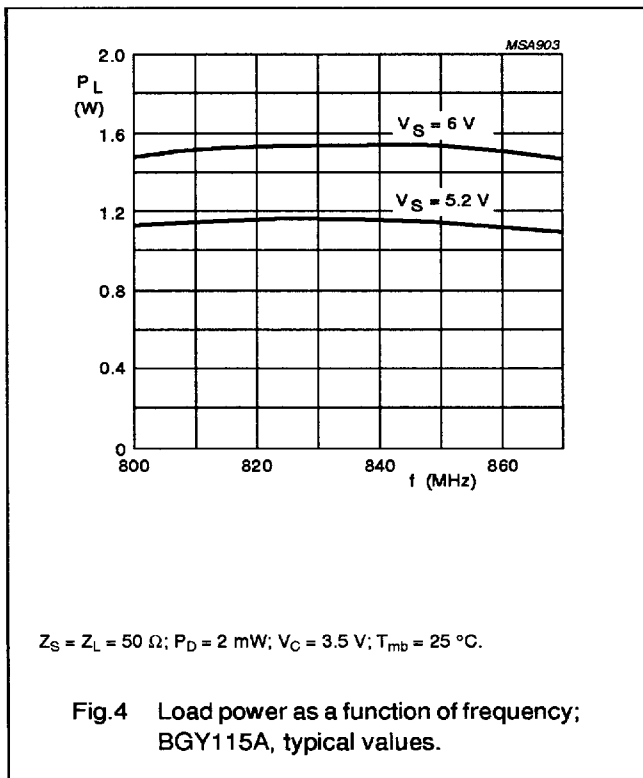
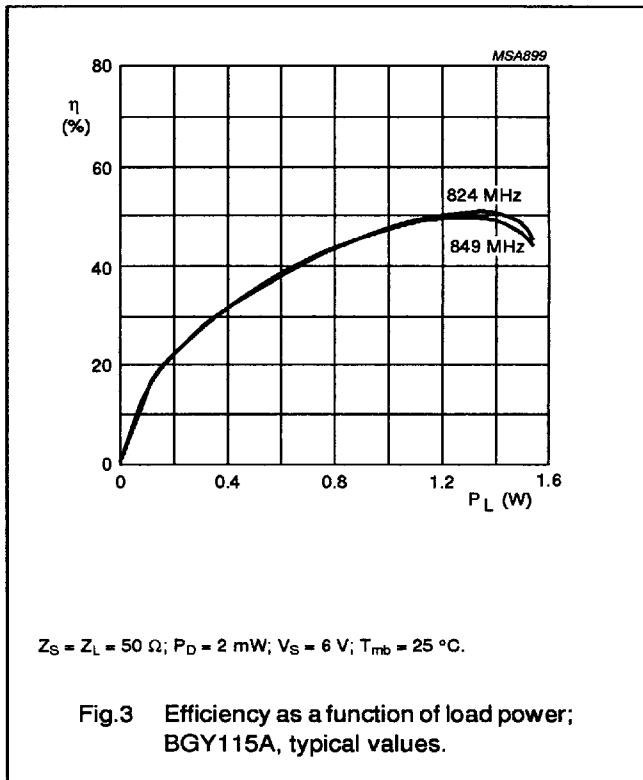
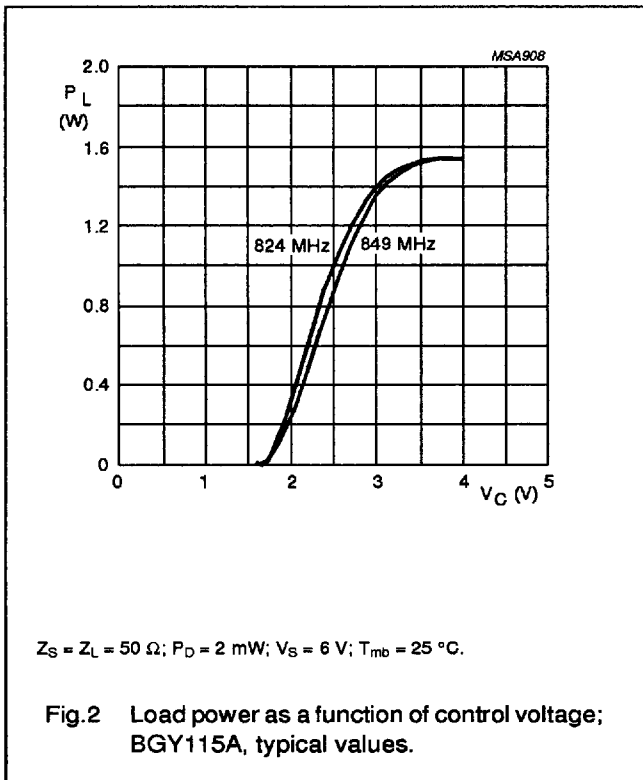
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
f	frequency					
	BGY115A		824	–	849	MHz
	BGY115B		872	–	905	MHz
	BGY115C/P BGY115D		890 902	– –	915 928	MHz MHz
I_Q	leakage current	$V_C = 0$; $P_D < -60 \text{ dBm}$	–	–	100	μA
I_C	control current	note 1	–	–	500	μA
P_L	load power					
	BGY115A, BGY115B, BGY115D BGY115C/P		1.2 1.4	– –	– –	W W
G_p	power gain	note 1				
	BGY115A, BGY115B, BGY115D BGY115C/P		27.8 28.5	– –	– –	dB dB
η	efficiency	note 1	45	50	–	%
H_2	second harmonic	note 1	–	–	–40	dBc
H_3	third harmonic	note 1	–	–	–40	dBc
$V_{SWR_{in}}$	input VSWR	note 1	–	–	3 : 1	
	stability	$P_D = 0$ to 6 dBm; $V_S = 4.8$ to 8.5 V; $V_C = 0$ to 3.5 V; VSWR $\leq 6 : 1$ through all phases; note 2	–	–	–60	dBc
	isolation	$V_C = 0$	–	–	–40	dBm
P_n	noise power	bandwidth = 30 kHz; 45 MHz above f_0 ; note 1	–	–	–90	dBm
	ruggedness	note 3	no degradation			

Notes

1. Adjust V_C for $P_L = 1.2 \text{ W}$ (BGY115A, BGY115B and BGY115D); $P_L = 1.4 \text{ W}$ (BGY115C/P).
2. Adjust V_C for $P_L \leq 1.2 \text{ W}$ (BGY115A, BGY115B and BGY115D); $P_L \leq 1.4 \text{ W}$, $V_S = 4.8$ to 8 V (BGY115C/P).
3. Adjust V_C for $P_L = 1.6 \text{ W}$; $V_S = 8.5 \text{ V}$; VSWR $\leq 10 : 1$; (BGY115A, BGY115B and BGY115D). Adjust V_C for $P_L = 1.6 \text{ W}$; $V_S = 9 \text{ V}$, VSWR $\leq 6 : 1$ (BGY115C/P).

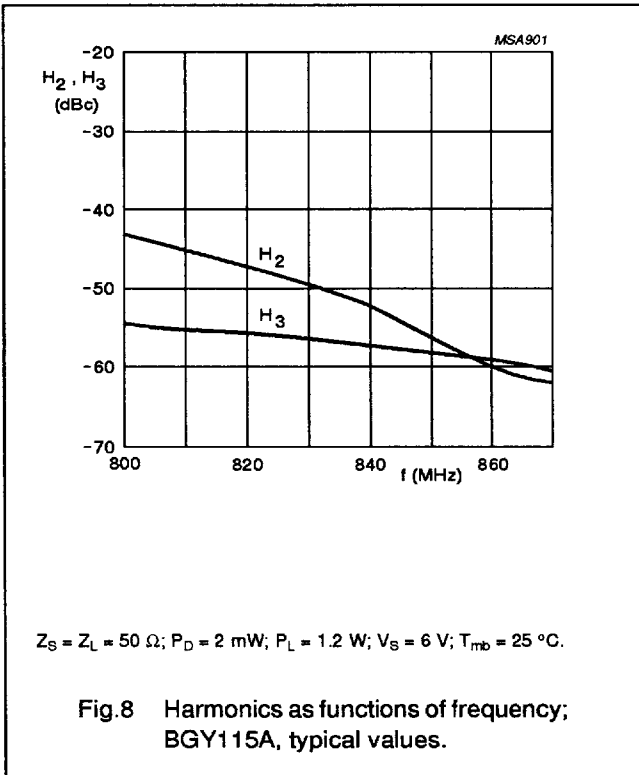
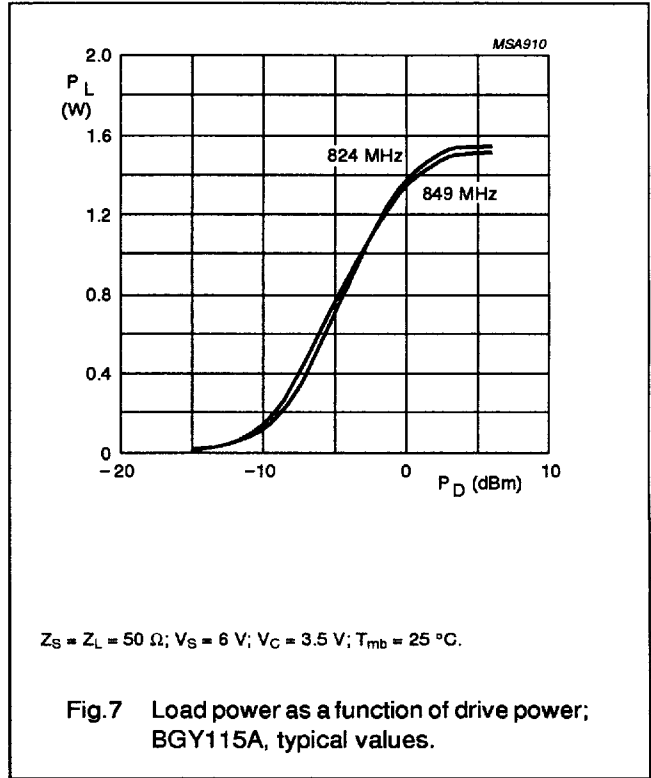
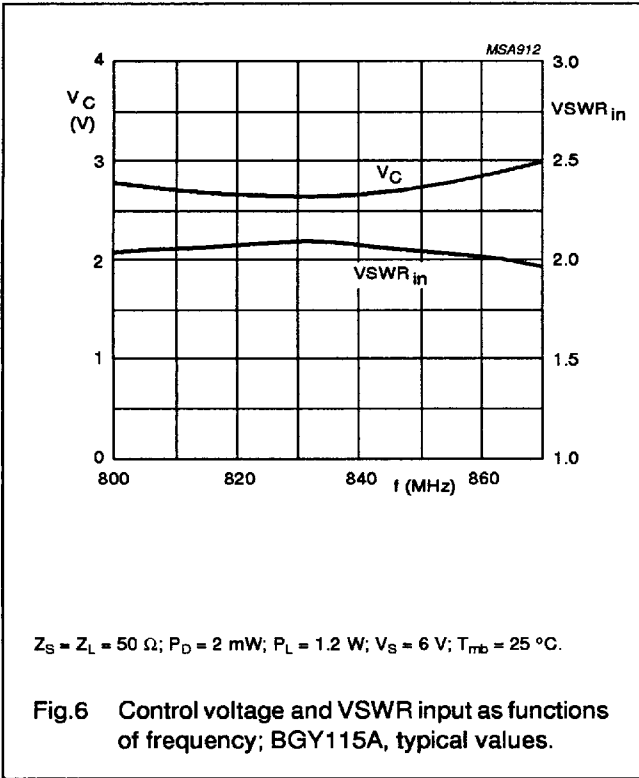
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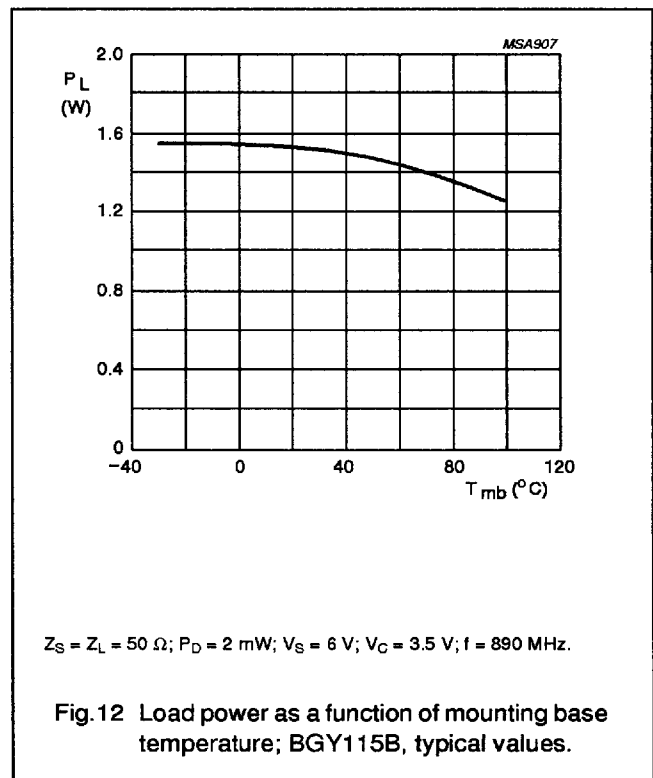
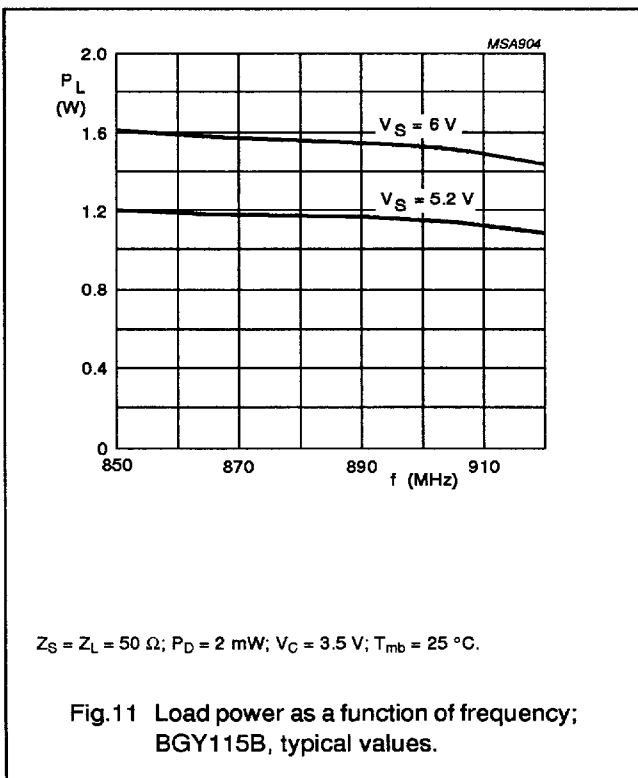
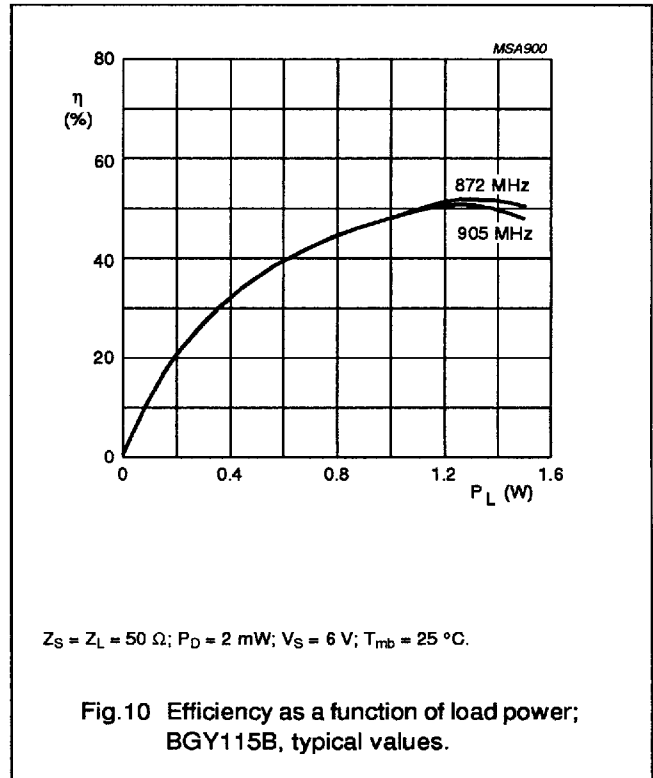
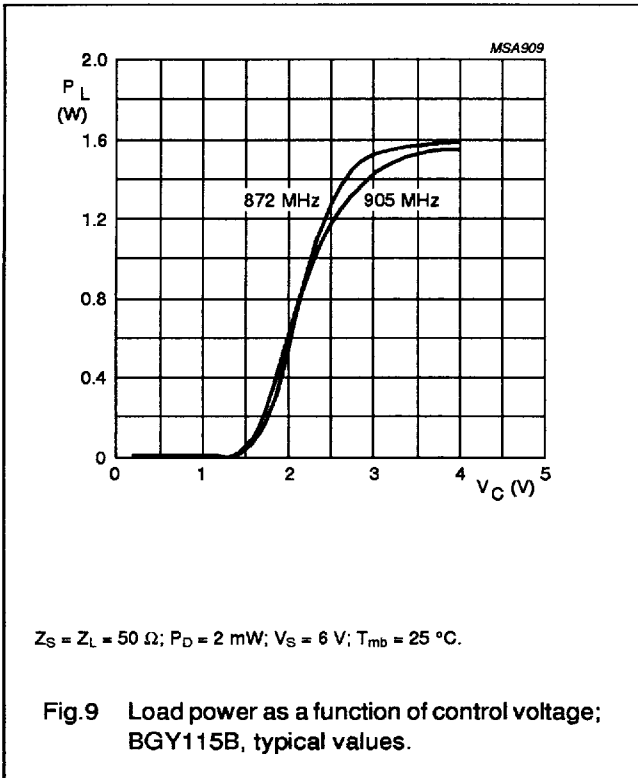
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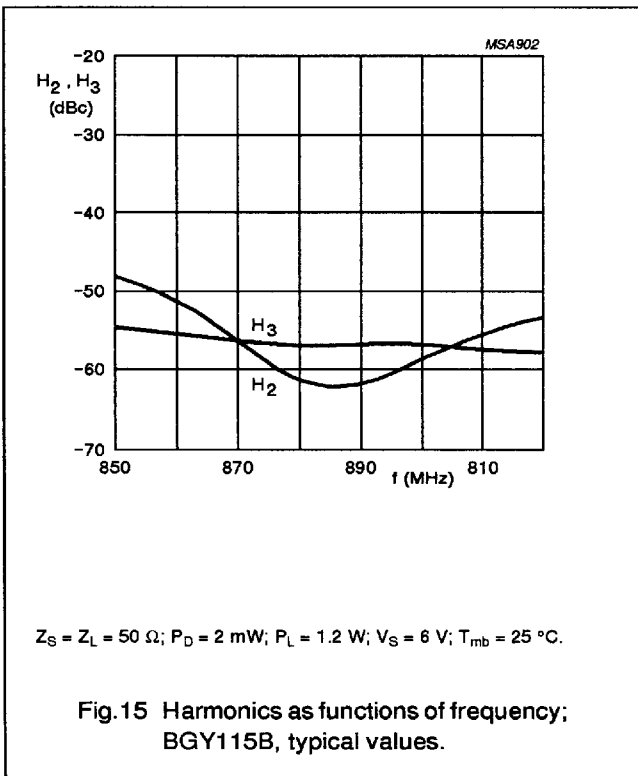
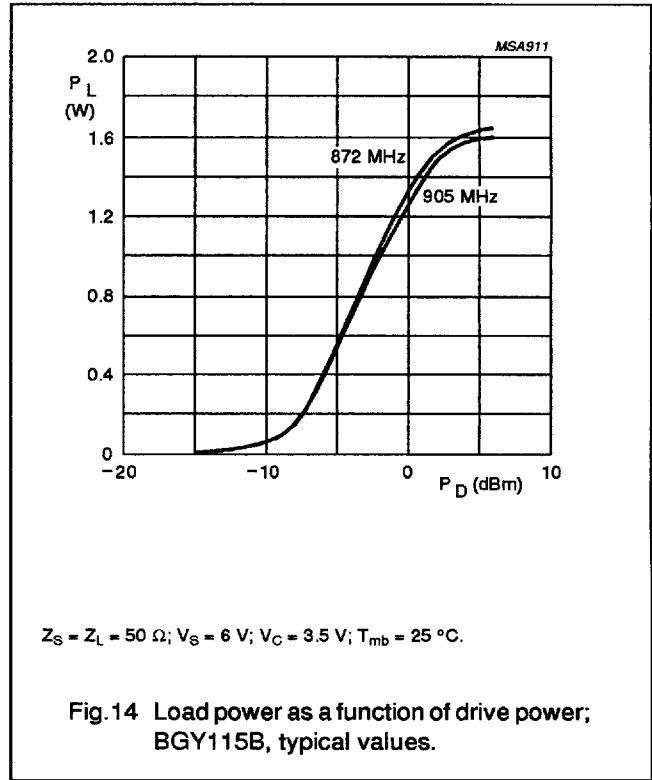
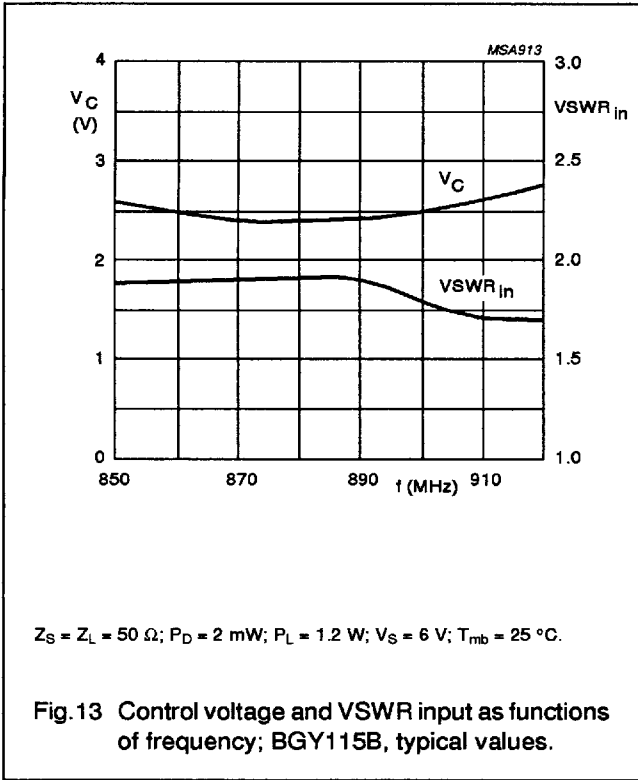
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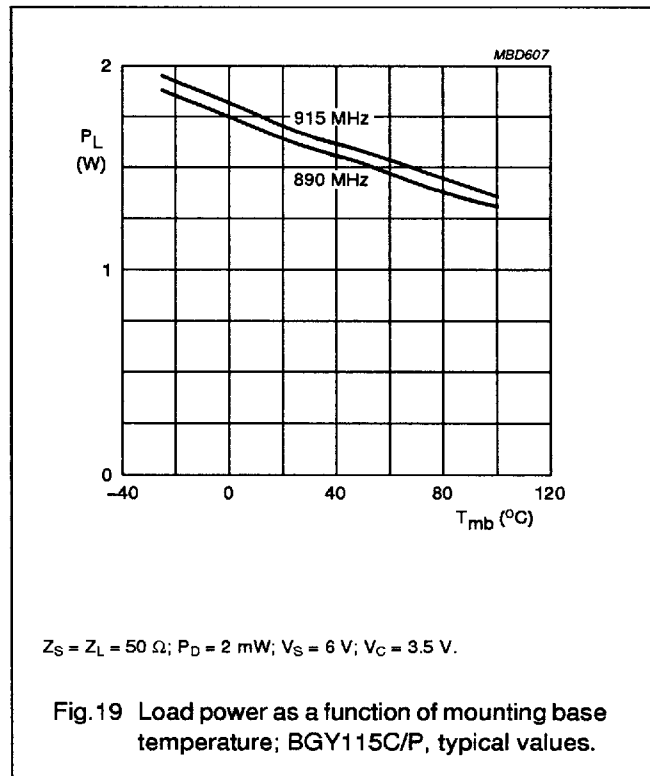
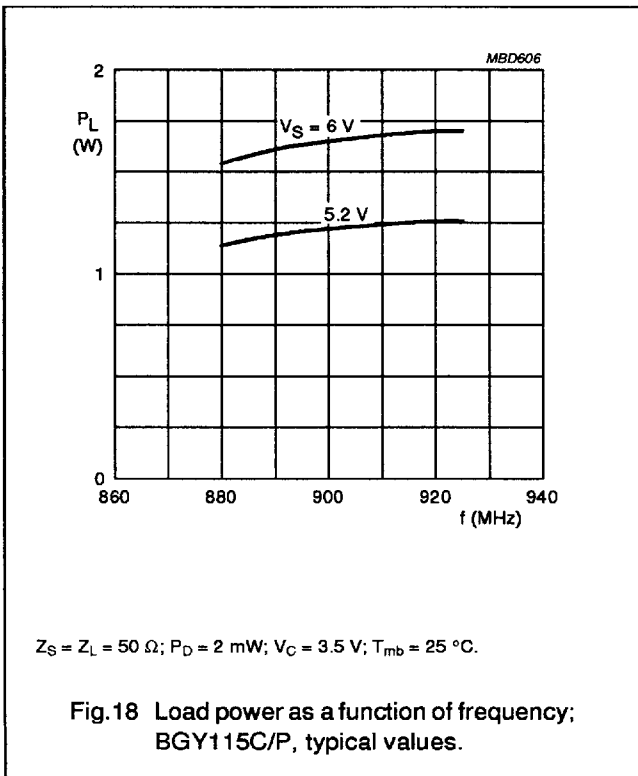
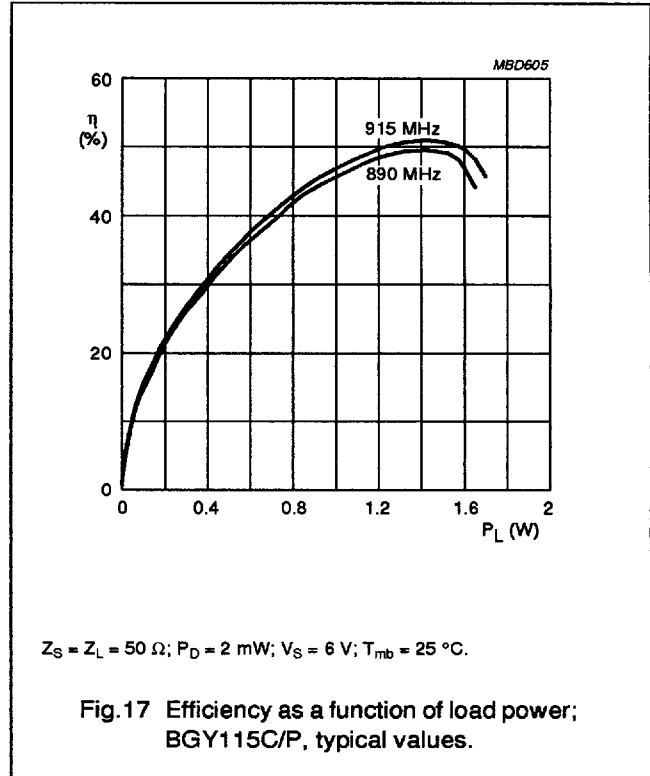
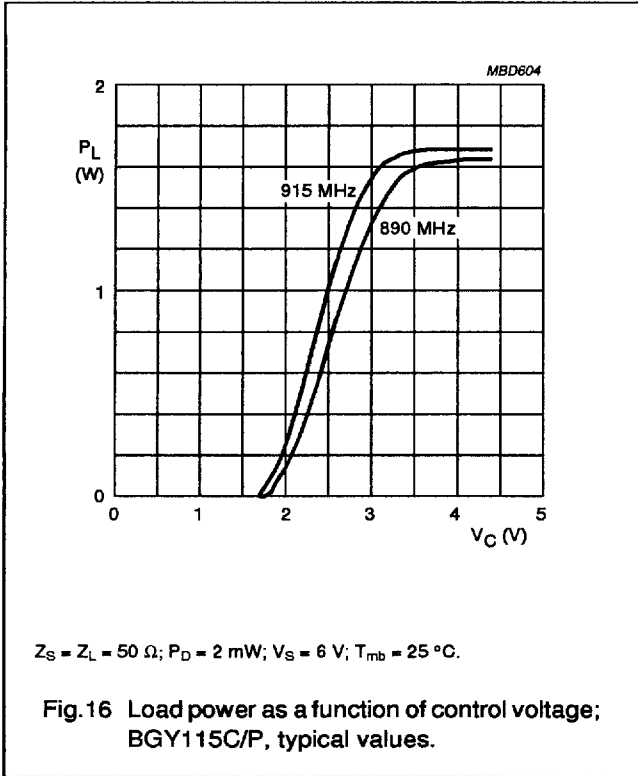
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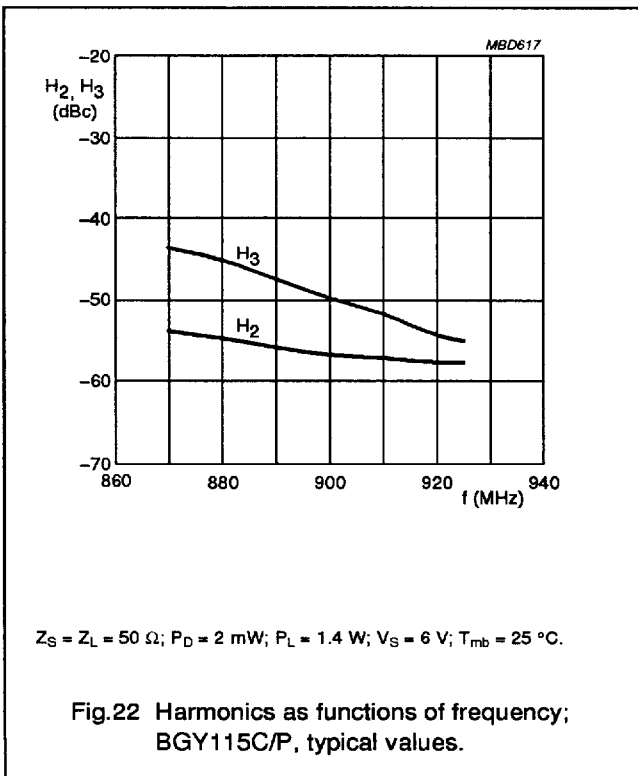
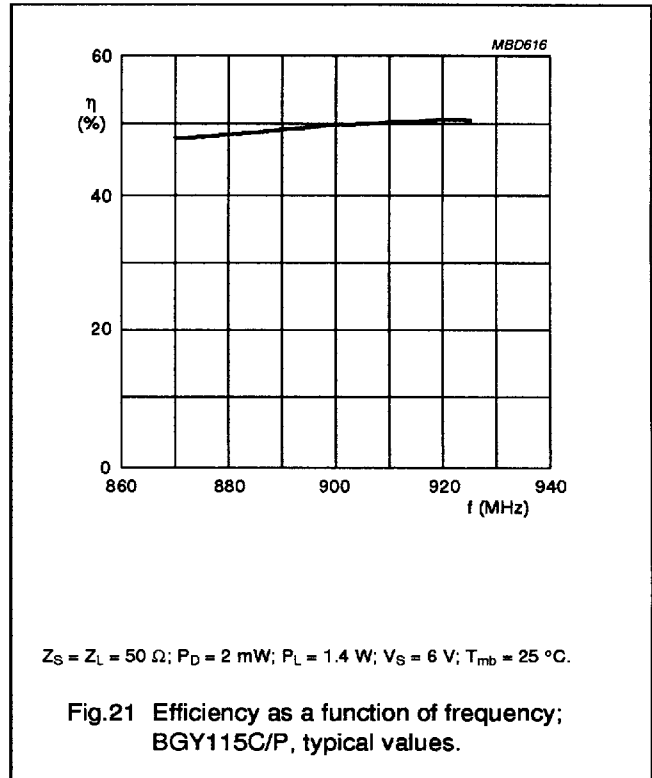
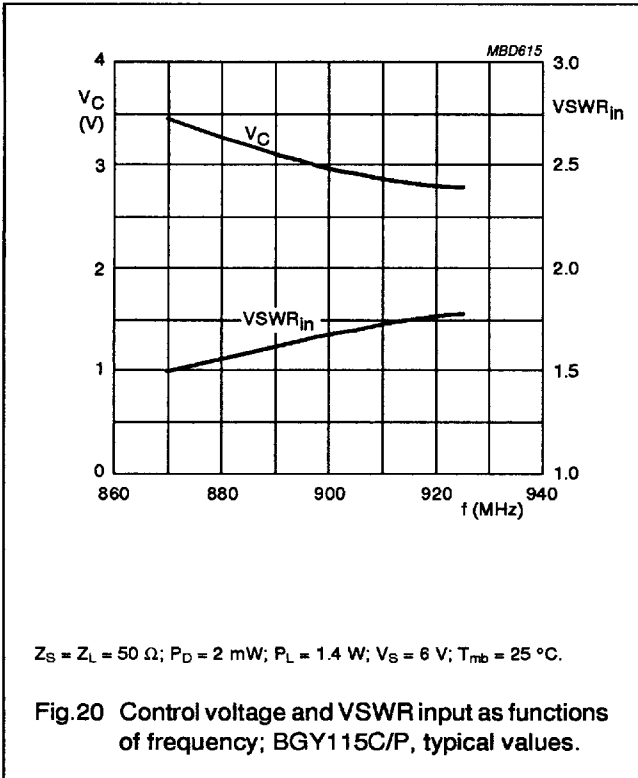
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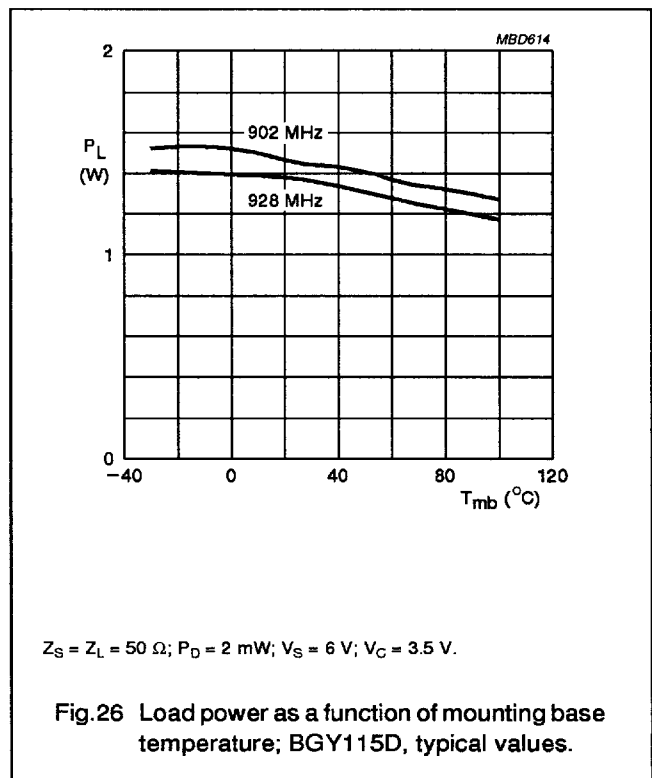
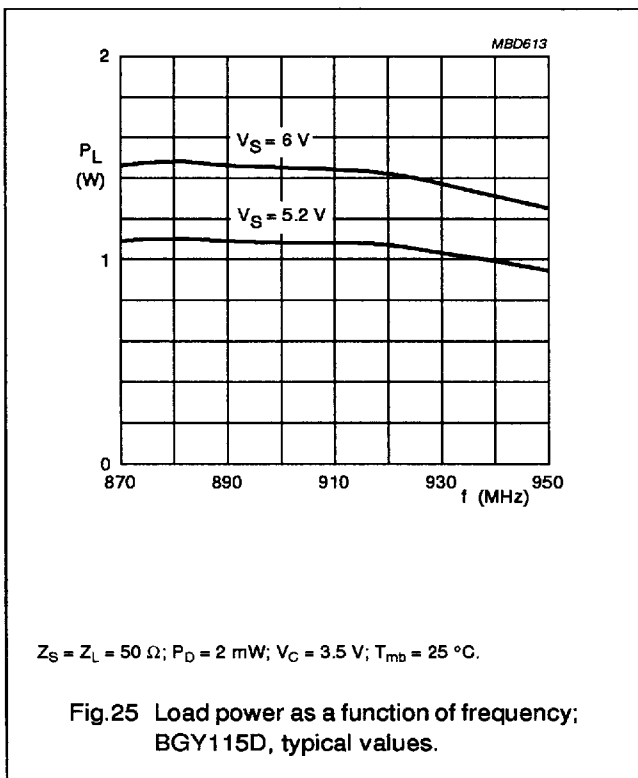
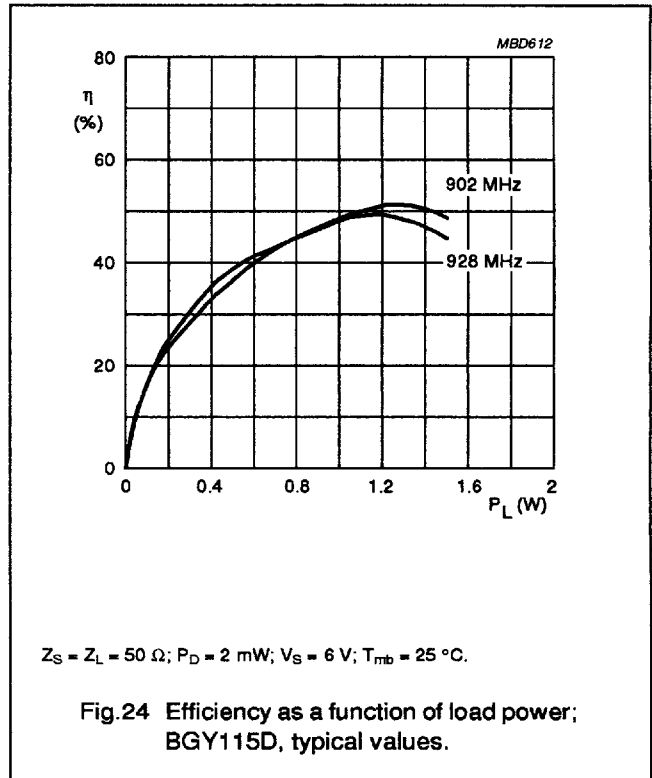
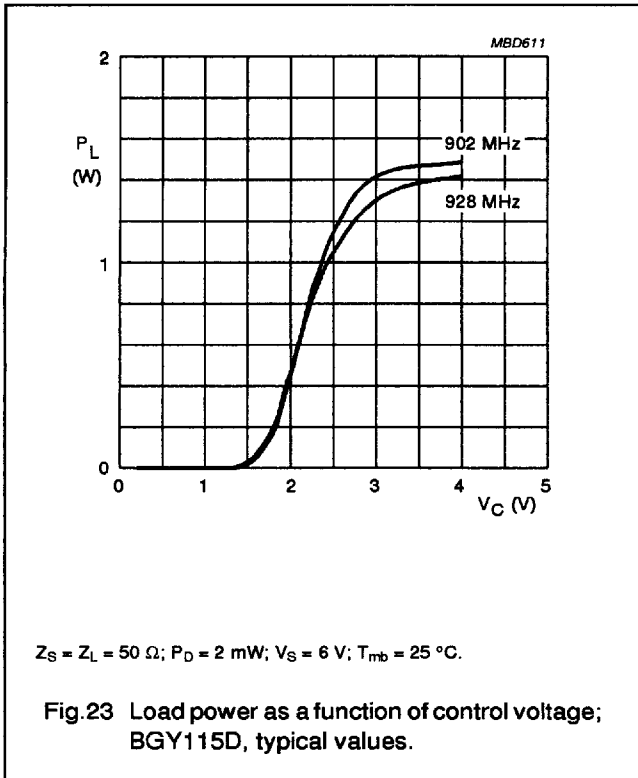
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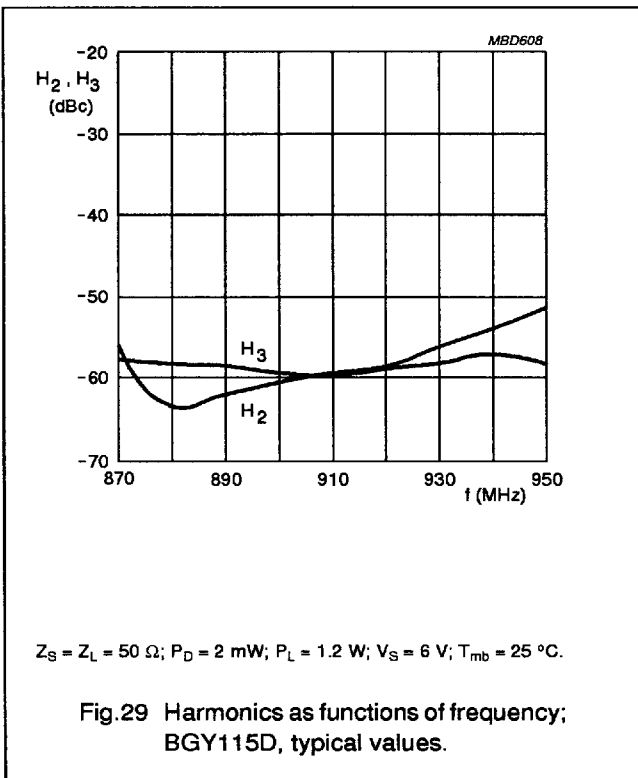
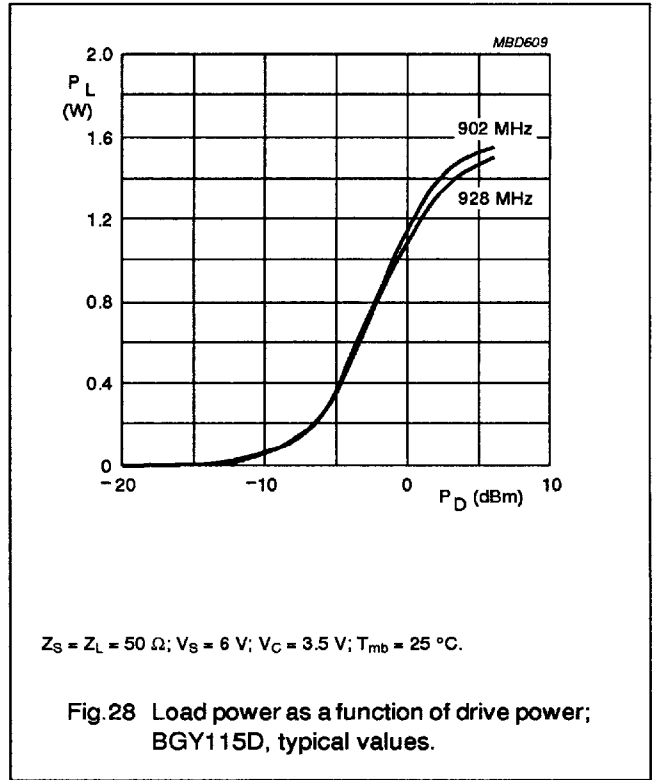
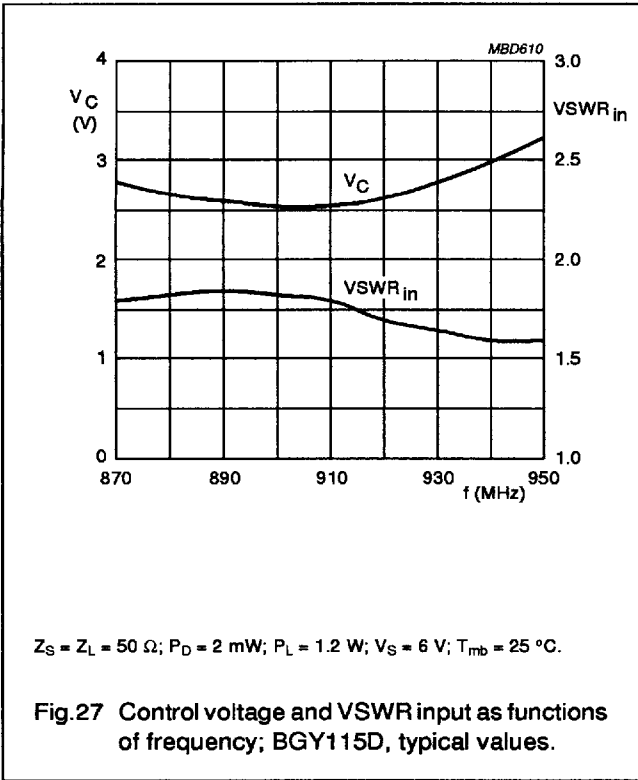
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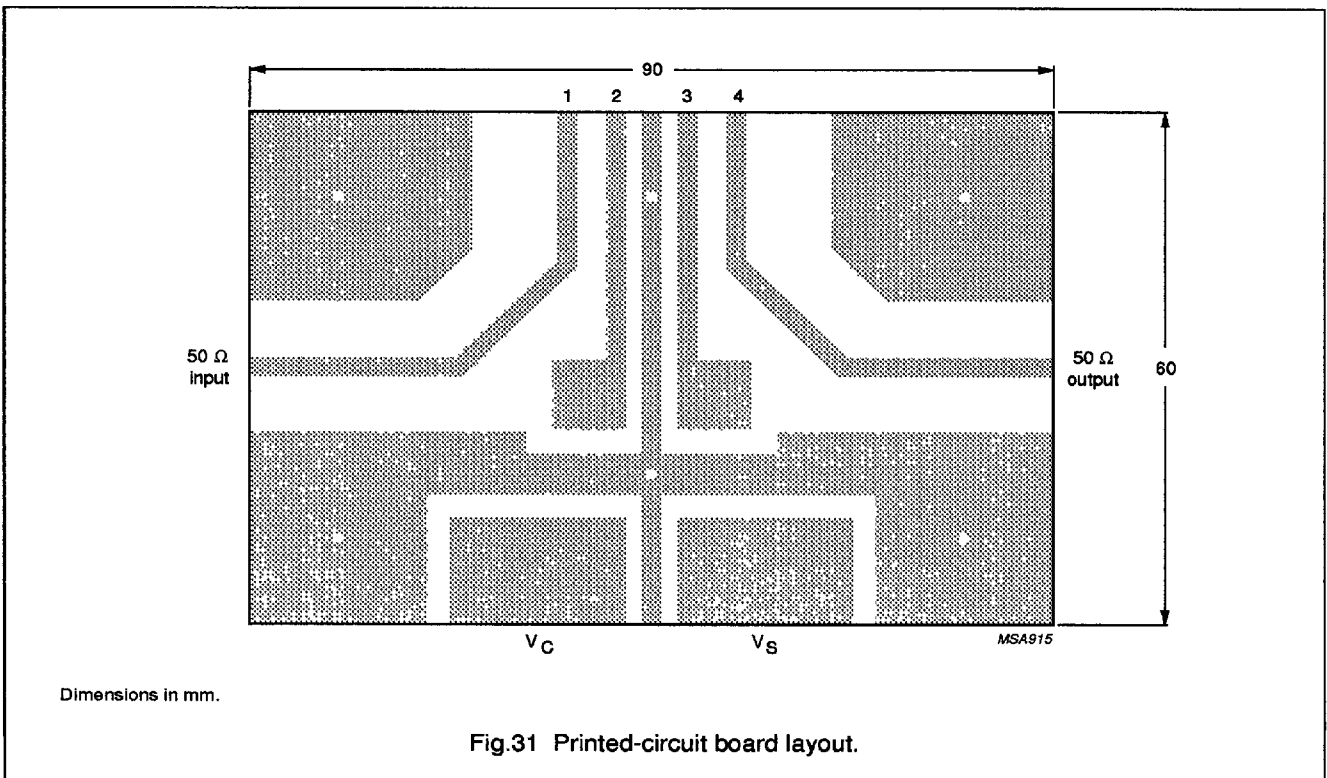
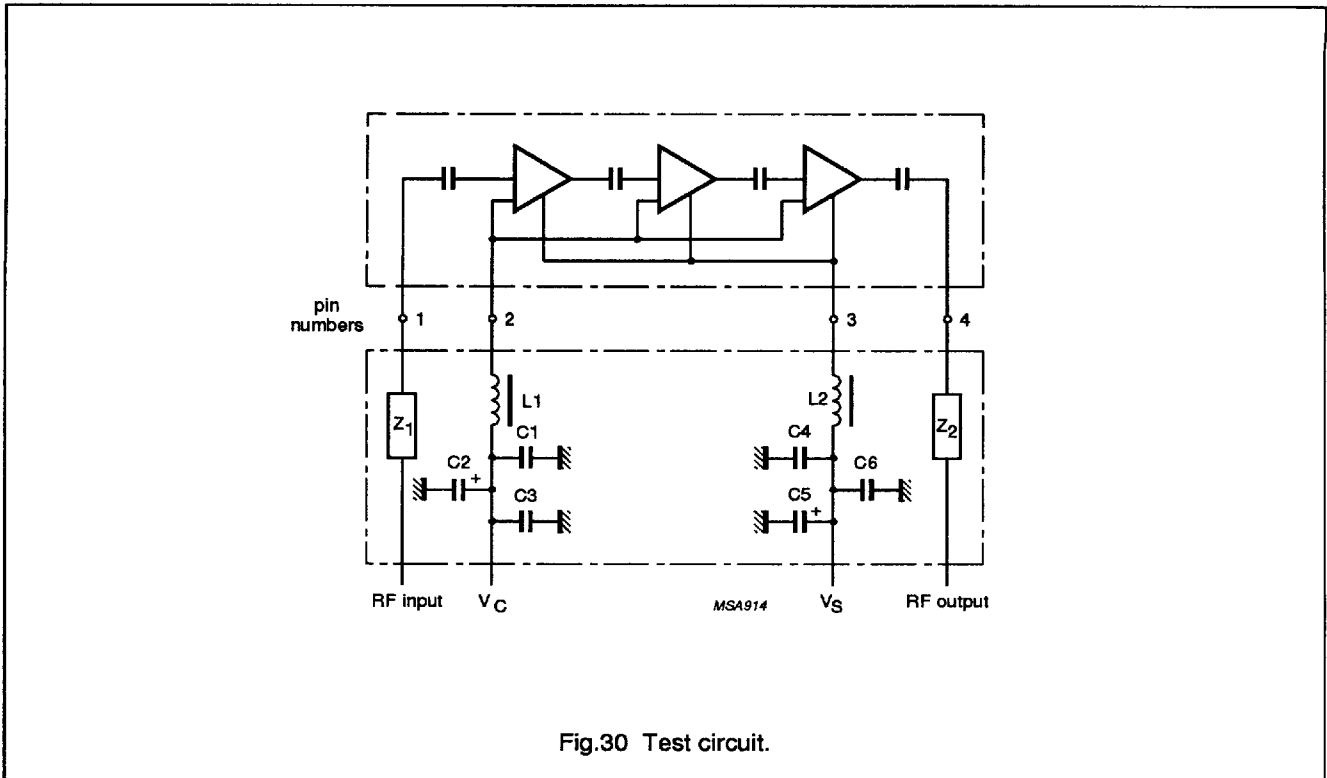
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List of components (see Fig.30)

COMPONENT	DESCRIPTION	VALUE	CATALOGUE NO.
C1, C4	multilayer ceramic chip capacitor	100 nF	2222 852 47104
C2, C5	35 V tantalum capacitor	2.2 μ F	-
C3, C6	multilayer ceramic chip capacitor	33 pF	2222 851 13339
L1, L2	Ferroxcube coil	5 μ H	3122 108 20153
Z ₁ , Z ₂	stripline; note 1	50 Ω	-

Note

1. The striplines are on a double copper-clad printed-circuit board with PTFE fibre-glass dielectric ($\epsilon_r = 2.2$); thickness $\frac{1}{32}$ inch.

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PACKAGE OUTLINE

